

CURRICULUM VITAE LAWRENCE SCHOVANEC

CURRENT POSITION

Provost and Senior Vice President
Texas Tech University
Lubbock, TX 79409
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Email: lawrence.schovanec@ttu.edu

EDUCATION

Ph.D., Indiana University, Mathematics (1982)
M.S., Texas A&M University, Mathematics (1977)
B.S., Phillips University (Enid, Oklahoma), Mathematics (1975)

ACADEMIC AND PROFESSIONAL POSITIONS

Provost and Senior Vice President, Texas Tech University (1/2014 - present)
Interim Provost and Senior Vice President, Texas Tech University (6/2013 - 12/2013)
Interim President, Texas Tech University (8/2012 - 6/2013)
Dean, College of Arts & Sciences, Texas Tech University (6/2010 - 8/2012)
Interim Dean, College of Arts & Sciences, Texas Tech University (9/2008 - 5/2010)
Chair, Department of Mathematics and Statistics, Texas Tech University (9/1999 - 9/2009)
Acting Chair, Department of Mathematics and Statistics, Texas Tech University (Fall 1998)
Professor, Texas Tech University (1996 - present)
Associate Professor, Texas Tech University (1989 - 1996)
Research Fellow, U.S. Air Force Summer Faculty Research Program, Astronautics Laboratory, Edwards Air Force Base, CA (Summer 1987)
Visiting Assistant Professor, Texas A & M University (1983 - 1984, 1985 - 1986)
Assistant Professor, Texas Tech University (1982 - 1989) (on leave: 1983 - 1984, 1985 - 1986)

ADMINISTRATIVE APPOINTMENTS

▪ Provost and Senior Vice President, Texas Tech University (January 2014-present), Interim Provost and Senior Vice President (June 2013 – December 2013)

As the Chief Academic Officer, I am responsible for the overall academic mission of Texas Tech University. This involves working with the president, deans, faculty, students and staff to promote academic excellence throughout the institution.

Specific duties as Provost include academic and budgetary planning, ensuring the quality of student learning by overseeing the curriculum and supporting educational initiatives, the development and enhancement of scholarship and research, the review of all faculty appointments, promotions, and tenure, and insuring compliance with institutional policies and external regulations, including accreditations. As Provost I also serve on President's Academic Council and the President's Executive Council.

As Provost I oversee thirteen deans from the following colleges and schools:

College of Agricultural Sciences and Natural Resources

College of Architecture

College of Arts & Sciences

College of Education

College of Human Sciences

College of Media and Communication

College of Visual and Performing Arts

Graduate School

Honors College

Rawls College of Business

Whitacre College of Engineering

School of Law

University Libraries

Direct reports also include seven Vice Provosts and the Associate Vice President of Information Technology and Chief Information Officer. The various offices and programs under their supervision include:

TTU Worldwide eLearning (Distance Education and Regional Campuses)

Office of International Affairs

Division of Undergraduate Education and Student Affairs

Institutional Research

Institutional Effectiveness
Office of Planning and Assessment
Academic Affairs
Academic Engagement
TTU Museum
TTU National Ranching Heritage Center
Office of Information Technology
TTU Independent School District

Highlights and Accomplishments as Provost

The Office of the Provost provided primary oversight of Texas Tech University's 2015 ten-year reaffirmation of institutional accreditation by the Southern Association of Colleges and Schools Commission on Colleges. In January 2016 TTU received full reaffirmation of accreditation through 2026. As part of this effort the Office of Institutional Effectiveness, which ensures that departments across campus are accountable for student and institution outcomes, was established within the Provost Office and the Office of Institutional Research now reports to the Provost.

A new initiative to improve student retention and graduation rates was launched in 2013. This included enrollment in the Education Advisory Board Student Success Collaborative, implementation of a data informed advising process, identification of and intervention with "at-risk" student populations, active intervention in critical courses with high failure rates, and greater consistency of academic advising. For 2014 and 2015, the one-year retention rate was 83.5%, a 2.8% increase over 2012. The six-year graduation rate for 2015 increased to 59.9%, compared to 59% for the prior year.
<http://www.depts.ttu.edu/provost/success/index.php>

In spring 2014, in conjunction with the Chief Financial Officer (CFO), the Annual College Budget Hearings were initiated. These hearings provide a more transparent process for allocation of resources that are better aligned with university priorities. As a result of the Budget Hearings and with the approval of the President, for FY2015-FY2017 more than \$37M in new funding was committed for new faculty lines, increased graduate student support, and infrastructure enhancements.

In Spring 2014, the Annual Budget College Forums were initiated to better inform the university community about the budget process and financial investments resulting from the College Budget Hearings. The Forums, which are a joint presentation by the Provost and CFO, are presented to all colleges and centers.

A model of differential tuition, developed in conjunction with the CFO and Office of the President, was approved by the Board of Regents in December 2015 and will be implemented in FY2017.

Administered the distribution of \$500K received from the Office of the President to implement a new spousal accommodation program to facility faculty hires for FY 2017.

To incentivize increased weighted semester credit hour generation (WSCH), revenue sharing plans were implemented in FY2104 and FY2016 that provided to the colleges a return on designated tuition generation based on college profit and increase in WSCH over the prior counting periods.

Reorganized the Provost's office with new staff members to enhance services to the academic mission.

The Office of TTU Worldwide eLearning was established in FY2014 to enhance the quality of online courses for both residential and nonresidential students and growth of online enrollment and academic programs offered at regional sites. Memorandums of Understanding have been signed that established new 2 plus 2 programs with Collin College and Hill College. This brings to seven the number of regional sites that report to TTU Worldwide eLearning. A new online distance fee was approved by the Board of Regents in FY 2014 and a revenue sharing model was implemented to provide additional resources to colleges in support online programs. <http://www.depts.ttu.edu/elearning/>

Worked with the Alumni Association to relocate the Osher Lifelong Learning Program (OLLI) under the Office of the Provost, reporting to Worldwide eLearning. A new organizational structure for the OLLI program was implemented and a national search for a new director, funded by the Provost Office, was successfully completed in spring 2016.

As part of the reorganization of the Graduate School, a new Dean of the Graduate School and Vice Provost of Graduate Affairs was appointed after conducting a national search. Interventions to grow enrollment and enhance program quality have included an investment of \$4M in graduate support in the last three years. Graduate enrollment has increased by more than 11% over fall 2013.

<http://www.depts.ttu.edu/provost/initiatives/grad-school/index.php>

The Office of Undergraduate International Admissions and the Office of International Development was created within the Office of International Affairs in 2014. On-ground recruiters have been placed in China, India, Brazil, Nigeria, Vietnam, Sri Lanka and Thailand. Traveled to China in 2014 and 2015 to promote collaborations with ten different universities. International enrollment for fall 2015 increased by 32% compared to fall 2013. The Office of International Development has helped to generate more than \$30M in proposals and secure close to \$3M in funding since its inception.

<http://www.depts.ttu.edu/provost/initiatives/international.php>

Coordinated ongoing negotiations regarding the potential establishment of a TTU campus in San Jose, Costa Rica. Made the initial visit to Costa Rica in fall 2014 and met with the investment partners and the President of Costa Rica, Luis Guillermo Solis. In collaboration with System counsel, TTU and TTU System CFOs and the Office of the President, a finalized framework agreement has been completed for consideration by the TTU Board of Regents.

In conjunction with the President and the Vice President of Research, the Center for the Humanities, which focuses on initiatives and successes of faculty in the liberal arts at Texas Tech University was established in fall 2014.

<http://www.depts.ttu.edu/provost/initiatives/establishing-humanities.php>

Appointed a Vice Provost for Academic Engagement and Outreach to provide oversight and facilitation of campus wide academic and community engagement. Texas Tech was selected by the Carnegie Foundation for the Advancement of Teaching to receive the 2015 Community Engagement Classification. In June 2015, the Association of Public and Land-grant Universities named TTU as a regional recipient of the 2015 W.K. Kellogg Foundation Community Scholarship Award, and a finalist for the C. Peter Magrath Community Award.

In spring 2016, university wide forums devoted to teaching excellence and student success were held. This will be an ongoing series of campus conversations addressing how Texas Tech can promote and support outstanding teaching and high impact educational experiences that enhance student learning and success at Texas Tech.

The Office of the Provost is responsible for the annual revision of the TTU Strategic Plan with input provide from university wide committees. The revised 2013-2014 annual report can be viewed at <http://www.ttu.edu/stratplan/docs/2013-stratplan.pdf>

Developed the College Dashboards that provide departmental and college data related to enrollment, retention and graduation rates, degrees awarded, student credit hours (face to face and online), weighted semester credit hours, salary, funded research activity (including proposals submitted, awards, RRE, TRE), college budget data, faculty headcount and FTE, and multiple measures of student-faculty ratios and instructional costs.

Entered into a collaboration with the Education Advisory Board as one of seven original alpha partners in the development of the Academic Benchmarking Tool. The first report from this initiative, completed in fall 2015, provided data on course success rates, bottle neck courses, student enrollment and transfer information, and a number of metrics related to student success and departmental efficiencies. Ultimately this data will be incorporated into the College Dashboards.

Promoted a decentralized hiring process and worked with the Deans to help hire 336 tenured and tenure track faculty from FY2014 to FY2016. This represented a 9.6% net increase in tenure track lines over Fall 2012. In addition, 53 Research faculty and Professor of Practice were hired during this period.

National searches were conducted that resulted in the appointments of new Deans for the Honors College, the College of Arts & Sciences and TTU Libraries, the College of Architecture and the College of Visual and Performing Arts. A dean search is ongoing for the Rawls College of Business.

National searches were conducted for a new director of the National Ranching Heritage Center and a new executive director of the Museum. Both were hired in 2015.

Coordinated by the Office of the Provost, collaboration between Texas Tech University and the Texas Tech University Health Sciences Center has been enhanced through a joint appointment of faculty and the establishment of a joint Bioengineering PhD program and a joint Master of Science in Biotechnology program.

In cooperation with the Office of the President and Faculty Senate, a Modified Instructional Duties Policy was developed to offer faculty a modified workload that supports work-life balance and provides flexibility in their teaching obligations. The Operational Policy that governs this policy was approved by the Senate in Spring 2016. Financial support for the program is offered through cooperation of the Offices of the President and Provost.

Through a collaborative effort with the Faculty Senate, the Office of the Faculty Ombudsperson became operational in January 2015. The Ombudsperson reports jointly to the Provost and Faculty Senate.

Facilitated the relocation of the Remnant Trust, a collection of more than 1200 manuscripts, first editions and early works to Texas Tech University in January 2015. This involved securing \$2M in gifts from the CH Foundation and the Helen Jones Foundation to support the operations of the Trust, and working with the TTU System and the President's Office to negotiate a contract to relocate the collection to TTU. The Remnant Trust at Texas Tech reports to the Provost.

Provost Office acquired NBC Learn, a digital resource that includes a collection of videos, documents and images from the NBC News historical archives for classroom and online use. All Texas Tech students, faculty, staff and researchers have access via their eRaider ID to the NBC Learn Higher Ed website.

▪ **Interim President, Texas Tech University (August 2012- June, 2013)**

Served as the Chief Executive Officer responsible for oversight of academic, research, athletic and service programs with a total budget of \$732 million. A report of some of the university's achievements during fiscal year 2013 are highlighted in the following President's Report: <http://www.ttu.edu/administration/president/ar/acc2012/>

Highlights and Accomplishments

In FY2013, a decentralized approach to filling vacant faculty positions that returned all faculty lines to the colleges. Ultimately, 115 tenured and tenure track faculty and 32 research faculty and professors of practice were hired. This resulted in a net increase of 68 tenure and tenure track lines from fall 2012 to Fall 2013. IPED data for fall 2013 reported a 20:1 student faculty ratio compared to 24:1 in 2012.

The Texas Tech University System Board of Regents authorized the construction of a \$50 million dollar new suite-style residence hall that would accommodate graduate students and upper classmen in December 2012. In May 2013, the Board of Regents authorized a modified budget of \$54.8 million dollar for the four hundred fifty-room project. (This facility was opened and dedicated in fall 2014.)

Authorized over \$2 million of infrastructure and deferred maintenance upgrades during fiscal year 2013.

Three members of the National Academy of Engineering were hired in the Edward E. Whitacre J. College of Engineering during FY 2013. Two of these filled existing endowed professorships and the third was appointed as a President's Distinguished Chair.

Committed \$1 million in new funding to increase guaranteed scholarship amounts for Freshman Presidential Scholarships in order to maximize yield from student applicants with an SAT in excess of 1200 and those in the top twenty-five percent of their class.

To enhance spring 2013 enrollment authorized \$630K in one time new funding for an additional mid-year transfer scholarship program.

Authorized more than \$2 million to fund additional graduate student enrollments for spring 2013 and fall 2014.

Initiated a West Texas recruitment effort that included a mailing campaign and personal appearances at area high schools in the West Texas region.

Represented Texas Tech University during the 82nd Legislative Session, testifying numerous times before the Senate Finance Committee, the House Committee on Appropriations and the Legislative Budget Board. Texas Tech University received an increase in its Education and General Budget appropriations of more than 6% for the biennium period.

Actively participated in student recruitment efforts with appearances and presentations at all Top Scholars Receptions for students in Austin, San Antonio, Houston, Dallas, and Albuquerque. During the spring I appeared at Red Raider Roadshows in Austin, El Paso, San Antonio, Houston, and Dallas. Other activities included regular meetings and updates with the Office of Undergraduate Admissions and appearances at Red Raider Orientations.

In collaboration with the Tier One Planning Group and the Provost's Office, the TTU Strategic Plan was updated with an emphasis on new strategies for enrollment management, student scholarship support, research funding, and a revised senior hiring strategy.

Working with the Vice President of Research, finalized plans and signed agreements between TTU, DOE, Sandia, Vestas, and Group NIRE critical to the establishment of the Scaled Wind Farm Technology facility.

To promote communication with university leadership, the Senior Advisory Council was reactivated and regular meetings of the President's Advisory Council were continued.

Working with the Provost's office, appointed a new liaison between Texas Tech and our remote campus sites in Fredericksburg, Highland Lakes, Junction and McLennan Community College in Waco as part of efforts to improve educational and outreach programs for those sites.

An Interim Vice President of Research was appointed.

In consultation with the Athletic Director, head coaches for football, mens basketball and womens basketball were hired with the approval of the Chancellor and the Board of Regents.

▪ **Dean, College of Arts and Sciences (September 2008 - August 2012)**

Responsible for the oversight of 16 departments in the areas of Humanities, Social Sciences, Natural Sciences and Mathematics. Arts & Sciences has the largest enrollment of any college at Texas Tech University with more than 10,000 students, approximately 390 tenured and tenure track faculty members, 500 total full-time faculty and approximately 700 graduate part-time instructors. Arts & Sciences typically teaches more than 400,000 student credit hours in an academic year, more than fifty percent of the Texas Tech University total. Expenditures in the College were more than \$65 million and the College generated more than \$85 million in formula funding and designated tuition.

Highlights and key accomplishments

From FY2009 to FY2012, Arts & Sciences averaged \$14.3 million in annual external research awards, compared to \$10.2 million over the previous four years.

Enrollment grew by almost ten percent from fall 2007 to fall 2011. Total weighted semester credit hours taught increased by more than twenty two percent from FY2008 to FY2012.

The *Returning Faculty Research Award* program was established to incentivize faculty who received national awards that are included as benchmarks for faculty excellence in the National Research University Fund criteria. The College also instituted the *Scholar Incentive Award* program, which provided support to primarily junior faculty to complete and publish substantial scholarly work.

In the first two competitions of the Texas Tech Internal Competitive Funding Opportunity to Advance Scholarship in the Creative Arts, Humanities and Social Sciences, faculty from A&S received more than \$650,000 in awards, accounting for 56 out of 94 total awards.

The College made five strategic/senior hires in areas identified as university strategic research priorities.

The College aggressively positioned itself to benefit from the initial implementation of the new university Responsibility Center Management (RCM) budgetary system. An Associate Dean of Finance was appointed to support the systematic development of all matters related to productivity and efficiency in order to maximize opportunities for growth. In the initial FY2011 phase of RCM implementation, the College received \$3.2 million in incentive funding and earned \$2 million as part of a summer incentive return program.

Utilized additional resources from the distribution of RCM incentive funds to provide departments approximately \$750K for equity adjustments and additional graduate support.

Created the Research Incentive Proposal Program, which awarded \$500K to support new departmental projects focused on growing enrollment and research.

The Cancer Prevention and Research Institute of Texas awarded a \$2.5 million grant for which I served as PI to support ongoing efforts in recruiting a prominent cancer researcher to the Department of Physics.

The College formed Research Councils for the Natural and Physical Sciences and the Humanities and Social Sciences to promote research and creative activities, educate faculty on funding opportunities, coordinate collective efforts to secure large collaborative grants and better coordinate our research programs across the College.

Several Arts & Sciences faculty received awards that contributed to the National Research University Fund benchmarks for faculty excellence and national research status, including NSF CAREER Awards, Fulbright Scholars, and Woodrow Wilson National Fellowship and election to North American Academy of the Spanish Language.

In FY2011 the College completed a revision of the College Strategic Plan in order to align priorities with university strategic initiatives. A revision of the College Tenure and Promotion standards was also initiated.

The college reorganized and expanded development activities. From FY2009 to FY2012, annual giving per year averaged \$14,697,277 compared to \$3,882,460 for the previous four years.

A cash gift of \$4 million from a private donor and a \$2.8M match from the Texas Research Incentive Program was secured to fund and establish the Free Market Institute.

A commitment of \$4M from the Helen Jones Foundation and a match of \$2M from the Texas Research Incentive Program was secured to provide undergraduate and graduate scholarship for students in the College of Arts & Sciences. This gift was partially funded in 2012 and the balance awarded in 2013.

In efforts to promote a greater connection to alumni and enhance development activity, the college published the inaugural edition of the *A&S Magazine* in 2009. This publication is distributed to over 42,000 alumni each year. The college also launched a quarterly electronic newsletter, the *A&S Connections*. In addition to increasing personal visits, receptions were held in Dallas, Fort Worth and Houston on an annual basis.

Established the Arts & Sciences Science, Technology, Engineering and Mathematics (STEM) Council to promote and coordinate STEM activities within the college and increase collaboration among departments and with other units across the university.

The college supported an extensive list of outreach programs to promote recruiting, diversity and special educational opportunities including two NSF funded programs: *GK-12: Building Bridges Program*, a joint effort between TTU and South Plains College aimed at assisting underrepresented students in the sciences, and *Innovation through*

Institutional Integration: Integrated STEM Initiative on the South Plains, which provided increased resources and institutional support for K-12 outreach, recruitment, and mentoring to enhance and support the existing STEM educational outreach programs at TTU.

Established the Arts & Sciences Ambassadors, a group of outstanding students who participate in recruiting events and other promotional activities for the college.

Over a period of four years, three departments in the College of Arts & Sciences received the Texas Tech Teaching Academy Departmental Excellence in Teaching Award, which carries a prize of \$25,000.

A College of Arts & Sciences Ad Hoc Committee on Advising was constituted in order to conduct a review of advising within the College and to make recommendations to improve advising across the college. Changes made included: a) professional development of college advisors, b) implementation of an on-line electronic degree plan filing procedure; and c) the distribution of more than \$800K in new funding to enhance advising experiences at the department and college levels.

▪ **Chair, Department of Mathematics and Statistics (June 1999 – September 2008)**

Responsible for a department with forty seven tenured/tenure-track faculty, ninety four full time graduate teaching assistants and approximately twenty instructors and lecturers, which taught approximately 58,000 student credit hours each year, more than any department at Texas Tech.

Highlights and key accomplishments

External funding in the department increased from \$677,855 in FY2000 to \$2,380,427 in FY2009 and the number of graduate students in mathematics and statistics increased from 71 to 103.

The first endowed chair in Mathematics and Statistics, the “Dick” and Martha Brooks Endowed Professorship, was established in FY2004 and successfully filled in FY2006.

In FY2006, the department received the Collegiate Partnership in Education Crystal Award from the Texas Association of Partners in Education in recognition of outreach to K-12 schools

In support of STEM initiatives, the department has awarded more than \$12 million dollars in grants from the National Science Foundation to establish the South Plains Mathematics Scholars Program, West Texas Math Partnership, and G-K12 Building Bridges Program, and the Texas Tech Noyce Scholars program.

The number of departmental scholarship endowments increased from 21 in FY2000 to 28 while the total amount of the endowments grew from \$680,000 to more than \$1.8 million.

HONORS, DISTINCTIONS

Texas Tech University Teaching Academy established the 'Lawrence Schovanec Teaching Development Scholarship' (2014)

Recipient of the Outstanding Contribution to Education Award, presented by Dialogue Institute of the Southwest (2013)

Recipient of the Texas Tech University Internal Inclusive Excellence Award, awarded by the Department of Institutional Diversity, Equity and Community Engagement (2011)

Elected President, Texas Association of Academic Administrators in Mathematical Sciences (2004)

Recipient of Texas Tech University President's Excellence in Teaching Award (1996)

Charter member, Texas Tech University Teaching Academy

Recognized as a 'Favorite Professor' at the 2003 and 2004 College of Engineering Annual Honors Convocation

Research Fellow, U.S. Air Force Summer Faculty Research Program (1987)

PROFESSIONAL AFFILIATIONS

Texas Council of Chief Academic Officer

Big XII Provosts

American Council on Education (ACAO)

Mathematical Association of America

American Mathematical Society

Society of Industrial and Applied Mathematics

SERVICE

▪ University Service

Chair, Texas Tech University Campus Carry Task Force (2015-2016)

Member, Texas Tech University System Campus Carry Working Group (2015-2016)

Member, Texas Emerging Technology Fund Search Committee (2011-2012)

Member, Whittaker College of Engineering Search Committee for Maddox Endowed Professorships (2011-2013)

Member, Texas Emerging Technology Fund Search Committee (2011-2012)

Chair, Dean Search, College of Agricultural Sciences and Natural Sciences (2011)

Member, Advisory Board, Greater Texas Foundation Middle School Math and Science Project (2011-2012)

Member, Information Technology Advisory Committee (2008-2012)

Member, President's Leadership Council (2010-2011)

Member, Materials Characterization Task Force (2010-2011)

Member, Responsibility Center Management (RCM) Council (2009-2011)

- Member, RCM Steering Committee
- Member, RCM Enhancing Research Revenue Working Group
- Member, RCM Facilities and Space Working Group

Member, Strategic Enrollment Planning Council (SEPC) (2009-2010)

- Member, SEPC Undergraduate Subcommittee

Member, Evening/Weekend School Steering Committee (2010)

Member, Revenue Enhancement and Allocation (REA) Task Force

- Chair, REA Facilities and Space Subcommittee

Member, Multidisciplinary Masters in Science Advisory Committee (2003- 2010)

Member, Texas Tech University Southern Association of Colleges and Schools Accreditation Task Force (2008-2009)

Member, Core Curriculum Steering Committee (2008-2009)

Member, Core Curriculum Committee (2008-2009)

Coordinator, Mathematics Core Competency Team (2008-2009)

Member, Graduate Program Review Committee, Mechanical Engineering (2008)

Member, Task Force on Centers and Institutes (2007-2008)

Chair, Search Committee for Chair of Department of Computer Science (2006-2007)

TTU Faculty Representative, Federal Demonstration Partnership (2003-2006)

Chair, Graduate Program Review Committee, Electrical and Computer Engineering (2005)

Chair, Graduate Program Review Committee, Mechanical Engineering (2003)

Member, Graduate Program Review Committee, Political Science (2001)

Member, Information Technology Committee and Subcommittee on High Performance Computing (2001-2003)

Member, Bioinformatics Planning Group for Experimental Science Building (2001)

Member, University Departmental Teaching Award Selection Committee (1999 - 2001)

Member, Arts and Sciences Information Technology Committee (1999)

Member, Building Planning & Design Committee, Experimental Science Building (Fall 1998)

Elected member, University Graduate Council, Mathematics and Sciences Representative (1991-1994)

Member, College of Arts and Science Dean's Search Committee (1992)

▪ **Departmental Service (Mathematics & Statistics)**

Member, Hiring Committee (1988-1990, 1991-1993, 1998-1999)

Chair, Hiring Committee (1993-1997)

Chair, Comprehensive Faculty Review Committee (1998)

Member, Awards Committee (1998-1999)

Member, Space Committee (1998 - 1999)

Member, Computing Committee (1992-1995, 1998-1999)

Elected member, Graduate Programs Committee (1988-1990, 1992-1994, 1997-1998)

Elected member, Executive Committee (1990-1992, 199-1997)

Departmental Coordinator for United Way Campaign (1988-1990)

▪ **Professional Service**

Member of Southern Association of Colleges and Schools Commission on Colleges On-Site Substantive Review Committee (August, 2015)

Member of Southern Association of Colleges and Schools Commission on Colleges Off-Site Reaffirmation Committee (September, 2014)

Member of Southern Association of Colleges and Schools Commission on Colleges On-Site Reaffirmation Committee (March, 2014)

Big 12 Conference Board of Directors (August 2012-June 2013, as Interim President of TTU)

Board of Directors, National Wind Resource Center (2010-2013)

External Reviewer, Mathematics Graduate Program, Texas A&M-Commerce (March, 2009)

President, Texas Association of Academic Administrators in Mathematical Sciences (2004 - 2005)

Panelist and group moderator, Mathematical Association of America Professional Enhancement Program Workshop: "Leading the Academic Department." Washington D.C. (June, 2004)

President-elect, Texas Association of Academic Administrators in Mathematical Sciences (2003-2004)

Invited presenter and panel participant: "Perceived Challenges for Mathematics Departments for the Next Ten Years." Annual Fall Meeting of the Texas Association of Academic Administrators for Mathematical Sciences, Waco, TX (October 2002)

Member, IEEE Control System Society's Technical Committee on Biosystems and Control

Member, Selection Committee, Outstanding Texas University Teacher Award, Texas Section of the Mathematical Association of America (2001-2002)

Member, Physical Sciences Panel for the Texas Higher Education Coordinating Board Advanced Research/Technology Program Review Team (1998)

Member, Advisory Board for the 3rd International Conference on Composites Engineering, New Orleans (1996)

Conferences, Special Sessions and Workshops Organized

Special Session: "Neuromotor Control," *2002 American Control Conference*, Anchorage, AL. Co-organizer W.P. Dayawansa TTU (May 2002)

Workshop: "Motor Control Problems in the Brain," *39th IEEE Conference on Decision and Control*, Sydney, Australia. Co-organizer, Bijoy Ghosh, Washington University, St. Louis (December 2000)

Special Session: "Control of Biological Systems," *39th IEEE Conference on Decision and Control*, Sydney, Australia, co-organizer, Bijoy Ghosh, Washington University, St. Louis (December 2000)

Workshop: "Biological approaches to control system problems," *2000 American Control Conference*, Chicago, IL. Co-organizer, Bijoy Ghosh, Washington University, St. Louis (June 2000)

National Science Foundation Conference Board of the Mathematical Sciences Regional Conference: "Superconvergence in Finite Element Methods," Texas Tech University. Co-organizer, Z. Zhang, TTU (May 2000)

Special Session: "Mathematics and Medicine," *SIAM National Meeting*, Kansas City, MO. Co-organizer C. Martin (July 1996)

Special Session: "Mathematical Modeling of Physiological Systems," *Mathematical Theory of Networks and Systems 1996*, St. Louis, MO (June 1996)

Special Session: "Bioengineering," *32nd Annual Meeting of the Society of Engineering*, New Orleans, LA (1995)

Reviewer for:

National Science Foundation

Swedish Research Council

American Society of Mechanical Engineers Publications
American Control Conference Proceedings
International Journal of Fracture
International Journal of Solids and Structures
Journal of Mathematical and Computer Modeling
Journal of Engineering Fracture Mechanics
Journal of Mathematics and Mechanics of Solids
Journal of Applied Mechanics
IEEE Journal of Automatic Control
IEEE Control Magazine
Rocky Mountain Journal of Mathematics
Academic Press; Harcourt Brace Press
Birkhauser Publications
SIAM Press

RESEARCH INTERESTS

Biomechanics and physiological control systems
Solid mechanics with an emphasis on fracture in elastic and viscoelastic media

RESEARCH GRANTS

▪ External Funding

1. Principal Investigator: “Innovation through Institutional Integration: Integrated STEM Initiative on the South Plains,” (Co-PI’s: J. Canas, J. Dwyer, J. Munoz)
Funded by National Science Foundation
Amount: \$977, 962
Date: 2009-2015 (one year no cost extension granted)
2. Co-Principal Investigator: Supplement to “Texas Tech Noyce Scholars Program.” (PI: J. Dwyer, Co-PI’s: D. Casadonte, T. Stephens, M. Strauss).
Funded by National Science Foundation
Amount: \$148,111
Date: 2009-2014
3. Co-Principal Investigator: “Texas Tech Noyce Scholars Program.” (PI: J. Dwyer, Co-PI’s: D. Casadonte, T. Stephens, M. Strauss).
Funded by National Science Foundation.

Amount: \$740,975
Date: 2008-2014

4. Senior Personnel: “Multidisciplinary Summer Undergraduate Research Program in Computation and Control of Biological and Biologically Inspired Systems.” (PI: P. Seshaiyer)
Funded by National Science Foundation
Amount: \$170,707
Date: 2006-2007
5. Principal Investigator, “Texas Tech University Connectivity to the vBNS,” (Co-PI’s: D. Ethridge, D. Smith, S. Mitra, H. Temkin)
Funded by National Science Foundation
Amount: \$350,000 (TTU matching funds: \$435,000)
Date: 1999-2002
6. Co-Principal Investigator, “Scientific Computing Environments for the Mathematical Sciences,” (PI: R. Anderson, Co-PI: D. Gilliam).
Funded by National Science Foundation
Amount: \$49,002 (TTU matching funds: \$60,000)
Date: 1999-2002
7. Co-Principal Investigator, “CBMS Regional Conference for the Mathematical Sciences,” (PI: Z. Zhang).
Funded by National Science Foundation
Amount: \$27,000
Date: 1999-2000
8. Principal Investigator, “Technology Center for Teacher Preparation,” (Co-PI's: G. Harris, D. Gilliam).
Funded by National Science Foundation
Amount: \$40,000 (TTU matching funds: \$50,000)
Date: 1998-2001
9. Co-Principal Investigator, “Knowledge Based Action Planning and Control Problems in Engineering and Biology,” (PI: B. Ghosh, Washington University, St. Louis; Co-PI’s: P. Ulinski, University of Chicago; C. Martin, W. Dayawansa, Texas Tech University).
Funded by National Science Foundation.
Amount: \$229,000 (Total award: \$704,000, with University of Chicago, Washington University, St. Louis)
Date: 1997-2001
10. Principal Investigator, “The Mathematics of Muscular Control and Bone Remodeling.”
Funded by Texas Higher Education Coordinating Board Advanced Research Program.
Amount: \$35,550
Date: 1996-1998

11. Project Director, "Mathematical Sciences Computing Research Environments: Computational Issues in Problems of Biomechanics," (PI: C. Martin).
Funded by National Science Foundation.
Amount: \$38,672
Date: 1996-1997
12. Project Director, "Health Care in Rural West Texas for the Twenty-First Century," (PI: C. Martin).
Funded by Digital Corporation Equipment Grant
Amount: \$160,000
Date: 1996
13. Co-principal Investigator, "A Computer Laboratory for Undergraduate Mathematics," (Co-PI: D. Gilliam).
Funded by National Science Foundation
Amount: \$50,000 (TTU matching funds: \$50,000)
Date: 1992-1995
14. Co-principal Investigator, "Analytical and Computational Methods in the Fracture of Composite and Damaged Materials," (Co-PI: Marc Stromberg).
Funded by Texas Higher Education Coordinating Board Advanced Research Program
Amount: \$80,000
Date: 1989-1991
15. Co-principal Investigator, "Analytical and Computational Methods in the Fracture of Composite and Damaged Materials." Supplemental support for minority student: Texas
Funded by Higher Education Coordinating Board Advanced Research Program
Amount: \$13,334
Date: 1991-1992
16. Principal Investigator, "Fracture in Solid Propellant: Damage Effects Upon Crack Propagation."
Funded by Air Force Office of Scientific Research, Research Initiation Program
Amount: \$22,381
Date: 1988-1989
17. Research Associate, "Interactive Analysis of Von Karmen Plate Equations," (PI: Joseph Minor).
Funded by Air Force Office of Scientific Research
Amount: \$3,767
Date: Summer 1985

▪ **Local Funding**

1. Co-Principal Investigator: "A Dynamic Model of Avian Kinesis," (Co-PI's: S. Chatterjee, A. Barhorst) Funded by TTU Interdisciplinary/Multidisciplinary Seed Grant. Amount: \$18,673 (2002)

2. Principal Investigator, "Computer Algebra Systems and the Internet as Tools for Independent Mathematics Study and Development." Funded by Teaching, Learning and Technology Center, Texas Tech University. Amount: \$4,503 (summer 1996)
3. Faculty Investigator (with graduate student Brian Christiansen), "Finite Element Modeling of Boundary Value Problems Associated with Fracture in Nonhomogeneous Material." Texas Tech University Graduate School Research Award. Amount: \$800 (summer 1992)
4. Faculty Investigator (with graduate student Bijan Pashie), "The Energy Release Rate for Crack Propagation in Bonded Composite Material." Texas Tech University Graduate School Research Award. Amount: \$800 (summer 1989)
5. Faculty Investigator (with graduate student Rajan Alex), "Optimal Design of Cementless Stem Implants." Texas Tech University Graduate School Research Award. Amount: \$800 (summer 1993)
6. Principal Investigator, "Fracture in Damaged Viscoelastic Media." Funded by State Organized Research Fund, Texas Tech Institute for University Research. Amount: \$2,842. (1988-1989)
7. Faculty Investigator (with graduate student Bijan Pashaie), "Fracture in Damaged Media." Texas Tech University Graduate School Research Award. Amount: \$800 (summer 1988)
8. Principal Investigator, "Numerical Analysis and Graphic Display of Crack Models in Viscoelastic Solids." Funded by State Organized Research Fund, Texas Tech Institute for University Research. Amount: \$1,600 (1987-1988)
9. Principal Investigator, "Boundary Value Problems for Nonhomogeneous Elastic Bodies." Funded by College of Arts and Sciences New Faculty Grant, Texas Tech University. Amount: \$1,500 (1983)

PUBLICATIONS

(* Denotes non-refereed or expository publication)

1. * Foreword: *Perspectives in Interdisciplinary and Integrative Studies*, edited by P. Hughes, J. Munoz, M. Tanner. Texas Tech University Press (2015)
2. Revisiting an Outreach Mathematician, (with Jerry Dwyer). *Notices of the American Mathematical Society* 60(7) 924-926 (2013).
3. A Neuro-Muscular Elasto-Dynamic Model of The Human Arm--Part 1: Model Development, (with Alan Barhorst). *Journal of Bionic Engineering*, 6(2) 93-107 (2009)
4. A Neuro-Muscular Elasto-Dynamic Model of The Human Arm--Part 2: Musculotendon Dynamics, (with Alan Barhorst, Cody Moody). *Journal of Bionic Engineering*, 6(2) 108-119 (2009)
5. Application of hybrid parameter methods to biomechanical systems, (with A. Barhorst). *Proceedings of the 2008 Chinese Control and Decision Conference*. Yantai, China, 830-843 (2008)

6. A Nonlinear Dynamical Model and Response of Avian Cranial Kinesis (with A. Barhorst, S. Chatterjee, T. Burton). *Journal of Theoretical Biology*, 240(1), pp: 32-47 (2006)
7. Dynamic Model of The Human Arm (with C. Moody, A. Barhorst). *Proceedings of American Society of Mechanical Engineers International Mechanical Engineering Congress and Exposition*, Washington D.C, 6 pp (2004)
8. Effects of control strategies on stress development in skeletal structures (with A. Barhorst). *Proceedings of 2002 American Control Conference*, Anchorage, AL, 2319-2323 (2002)
9. Modeling and Control of 3D Eye Movement with Musculotendon Dynamics (with A. Polpitiya, B. Ghosh). *Proceedings of the 2002 IFAC World Congress*, Barcelona, Spain, 6pp (2002)
10. Modeling Human Movement Systems: Ocular Dynamics and Skeletal Systems. *IEEE Control Magazine*, Vol. 21, 70-79 (2001)
11. Approximations of Elliptical Arclength and Related Inequalities (with R. Barnard, K. Pearce). *Journal of Mathematical Analysis and Applications*, Vol. 260, 295-306 (2001)
12. Optimal Motor Control Strategies and a Hybrid Approach to Stress Analysis in Skeletal Systems (with A. Barhorst). *Proceedings 2001 American Control Conference*, Arlington VA, 236-240 (2001)
13. A Forward Dynamic Model of Gait with Application to Stress Analysis of Bone (with Y. Dewoody, C. Martin). *Journal of Mathematical and Computer Modeling*, Vol. 33, 121-143 (2001)
14. A Hybrid Approach to Stress Analysis in Skeletal Systems, (with A. Barhorst). *Proceedings of 39th IEEE Conference on Decision and Control*, Sydney, Australia, 271-277 (2000)
15. The Control and Mechanics of Human Movement Systems (with C. Martin). *Dynamical Systems, Control, Coding, and Computer Vision: New Trends, Interfaces, and Interplay*, ed. G. Picci and D. Gilliam, Birkhauser, 173-202 (1999)
16. An Application of Direct Dynamics to Stress Development in Bone (with Y DeWoody, C. Martin). *Proceedings of the Mathematical Theory of Network and Systems-98 Symposium*, ed. A. Beghi, et al., 995-998 (1999)
17. A Direct Dynamic Approach to Stress Development in Bone (with Y. DeWoody, C. Martin). *Proceedings of 20th International Conference of IEEE Medicine and Biology Society*, Hong Kong, 2474-2477 (1999)
18. Ocular Dynamics and Control (with C. Martin). *Proceedings of the 1999 IFAC World Congress*, Beijing, China, 5pp (1999)
19. A Dynamic 3-d Model of Ocular Motion (with P. Lockwood-Cooke, C. Martin). *Proceedings of 38th IEEE Conference on Decision and Control*, Phoenix, AR, 406-409 (1999)

20. *Modeling Human Motor Control (with W. P. Dayawansa). *The Science Corner: Lubbock Magazine*, 42-45 (1999)
21. Muscle Mechanics and Dynamics of Ocular Motion (with C. Martin). *Journal of Mathematical Systems, Estimation, and Control*, Vol. 8, No. 2, 233-236 (summary). Complete manuscript (15pp): birkhauser.com/journals/jmsec/download.html (1998)
22. The Energy Release Rate for Antiplane Fracture in Nonlinear and Nonhomogeneous Elastic Material. *Developments in Mechanics: Proceedings of the Twenty-Fifth Midwestern Mechanics Conference*, Rapid City, SD, Vol. 19, 11.1-11.4 (1998)
23. A Control Model of Eye Movement (with C. Martin). *Proceedings of 36th IEEE Conference on Decision and Control*, San Diego, CA, 1135-1140 (1997)
24. Dynamical Systems Approach to Target Motion, Perception and Ocular Control (with Bijoy Ghosh, C. Martin, E.P. Loucks). *Systems and Control in the Twenty-First Century: Progress in Systems and Control*, Birkhauser, ed. C. Byrnes, et al., Boston, Vol. 22, 185-204 (1997).
25. Technology in the Mathematics Preparation of Pre-Service K-12 Teachers at Texas Tech University (with Gary A. Harris). *Proceedings of the Ninth Annual International Conference on Technology in Collegiate Mathematics*, 222-226 (1997).
26. Fatigue Effects in Models of Muscular Control (with C. Martin). In *Computational Neuroscience*, ed. James Bower, Academic Press, San Diego, 385-391 (1996)
27. An Antiplane Crack in a Nonhomogeneous Viscoelastic Body. *Engineering Fracture Mechanics*, Vol. 36, 223-334 (1996)
28. Energy Release Rate Calculations for Fracture in Nonhomogeneous and Nonlinear Material. *Proceedings of the Third International Conference on Composites Engineering*, New Orleans, LA, 741-744, (1996)
29. Muscular Control and Stress Fractures (with C. Martin). *Proceedings of 32nd Annual Meeting of the Society of Engineering*, New Orleans, LA, 178-180 (1995)
30. A Quasi-Statically Propagating Crack in a Nonhomogeneous Viscoelastic Material. *Proceedings of 32nd Annual Meeting of the Society of Engineering*, New Orleans, LA, 221-223 (1995)
31. A Numerical Method for Problems of Fracture in a Nonlinear Composite Material (with Marc Stromberg). *Proceedings of the Second International Conference on Composites Engineering*, New Orleans, LA, 659-662 (1995)
32. Fatigue Effects in Muscular Control (with C. Martin). In *Eighth IEEE Symposium on Computer-Based Medical Systems*, IEEE Computer Society Press, Los Alamitos, CA, 188-196 (1995)
33. Problems of Optimal Design with Application to Prosthetic Design and Stress Prediction (with C. Nunn, C. Martin). In *Eighth IEEE Symposium on Computer-Based Medical Systems*, IEEE Computer Society Press, Los Alamitos, CA, 278-285 (1995)

34. Quasi-Static Mode III Fracture in a Nonhomogeneous Viscoelastic Body: Erratum (with Joseph M. Herrmann). *Acta Mechanica*, Vol. 106, No.1-2, 107-109 (1994)
35. Dynamic Steady-State Mode III Fracture in a Nonhomogeneous Viscoelastic Body (with Joseph M. Herrmann). *Acta Mechanica*, Vol. 106, No.1-2, 41-55 (1994)
36. A Power Series Method for Solving Initial Value Problems Utilizing Computer Algebra Systems (with John T. White). *International Journal of Computer Mathematics*, Vol. 47, 181-189 (1993)
37. *Wave Propagation in a Nonhomogeneous Rod. *Proceedings of the 7th Annual Conference on Applied Mathematics*, University of Central Oklahoma, Edmond, OK, 44-59 (1991)
38. Quasi-Static Mode III Fracture in a Nonhomogeneous Viscoelastic Body (with Joseph M. Herrmann). *Acta Mechanica*, Vol. 85, 235-249 (1990).
39. *Riemann-Hilbert Boundary Value Problems in Fracture Mechanics. *Proceedings of 6th Annual Conference on Applied Mathematics*, University of Central Oklahoma, Edmond, OK, 331-350 (1990).
40. An Efficient Algorithm for Generating Implicitly Defined Functions (with Edward Allen, et al.). *International Journal of Computer Mathematics*, Vol. 31, 137-145 (1990).
41. A mode III Crack Terminating Asymmetrically at a Wedge-shaped Inhomogeneity (with B. Pashaie). *Advances in Fracture and Fatigue for the 1990's: Proceedings of the ASME PVP Conference*, Honolulu, HI, 213-221 (1989)
42. The Dynamic Energy Release Rate for Crack Propagation in Viscoelastic Media (with Jay R. Walton). *Proceedings of the Pan American Congress of Applied Mechanics*, Rio de Janeiro, Brazil, 166-170 (1989)
43. Some Aspects of Crack Behavior in a Nonhomogeneous Material (with T. Timmons). *Engineering Fracture Mechanics*, Vol. 33, No. 5, 745-751 (1989).
44. The Dynamic Energy Release Rate for Two Parallel Steadily Propagating Mode III Cracks in a Viscoelastic Body (with Jay R. Walton). *International Journal of Fracture*, Vol. 41, 133-155 (1989)
45. An Antiplane Shear Crack in a Nonhomogeneous Elastic Material. *Engineering Fracture Mechanics*, Vol. 32, No. 1, 21-28 (1989)
46. A Mode III Crack Problem in a Bonded Composite Material. *Engineering Fracture Mechanics*, Vol. 31, No. 3, 437-449 (1988)
47. On the Stress Singularity for an Antiplane Shear Crack at the Interface Between Two Bonded Inhomogeneous Elastic Material (with Jay R. Walton). *Journal of Applied Mechanics*, Vol. 55, No. 1, 234-238 (1988)
48. The Energy Release Rate for a Quasi-Static Mode I Crack in a Nonhomogeneous Linearly Viscoelastic Body (with Jay R. Walton). *Engineering Fracture Mechanics*, Vol. 28, No. 4, 445-454 (1987)

49. *Fracture in Damaged Media: An Inhomogeneous Material Approach. Air Force Office of Scientific Research Technical Report, Air Force Astronautics Laboratory, Edwards AFB, CA (1987)
50. The Quasi-Static Propagation of a Plane Strain Crack in a Power-Law Inhomogeneous Linearly Viscoelastic Body (with Jay R. Walton). *Acta Mechanica*, Vol. 67, 61-77 (1987)
51. *Book Review: Ray Methods for Waves in Elastic Solids. In *Transport Theory and Statistical Physics*, Vol. 15, 551-553 (1986)
52. A Griffith Crack Problem for an Inhomogeneous Elastic Material. *Acta Mechanica*, Vol. 58, 67-80 (1986)

COLLOQUIA, CONFERENCE AND WORKSHOP PRESENTATIONS

1. Invited presentation: "University Innovation and Internationalization." *Global University President's Forum*, Southwest University of Finance and Economics, Chengdu, China (June, 2015).
2. Contributed Talk: "Using Data to Inform Decision Making." *Texas Council of Chief Academic Officers Retreat*, Austin, TX (January, 2015).
3. Invited Plenary Panel Session: "Boundary-Spanning: Engagement Across Disciplines, Communities and Geography." *14th Annual Conference of the Engagement Consortium*, Lubbock, TX (October, 2013).
4. Contributed Panel: "Institutionalizing STEM Education & Outreach at Texas Tech University." *14th Annual Conference of the Engagement Consortium*, Lubbock, TX (October, 2013).
5. Invited Address: "Texas Tech University: Fostering Interdisciplinary Research and Education to Support the Future Needs of Wind Energy." 2012-2013 Carroll University Exploration of Energy Speaker Series (April 2013).
6. Symposium Panelist: "Pathways to Student Success." On the Road: A Symposium on Higher Education sponsored by the Texas Tribune and Texas A&M University, College Station (November, 2013).
7. Presentation to National Science Foundation Review Panel: "The Integrated STEM Initiative on the South Plains." National Science Foundation, Washington, D.C. (June, 2012)
8. Invited Colloquium: "Control and Biomechanics of Human Movement Systems." Department of Physics, Texas Tech University (March, 2009)
9. Contributed talk: "Application of hybrid parameter methods to biomechanical systems." *2008 Chinese control and Decision Conference*, Yantai, China (July 2008)
10. Invited talk: "The Control and Biomechanics of Human Movement Systems," NSF sponsored conference on *Emerging Frontiers in Control Theory Research and Innovative Applications*, in honor of W.P. Dayawansa. Texas Tech University (April, 2007)

11. Invited session talk: "A hybrid parameter systems approach to modeling elastodynamic effects in biomechanical systems." *International Conference on Information and Automation and Control*, Colombo, Sri Lanka (December, 2005)
12. Invited session talk: "Modeling Hybrid Parameter Multiple Body Systems with Application to Biomechanics." *AMS Fall Central Section Meeting*, Lincoln, NE (October, 2005)
13. Invited session talk: "Control of hybrid parameter systems." *SIAM Conference on Control and its Applications*, New Orleans, LA (July, 2005)
14. Invited session talk: "A neuro-muscular-elasto-dynamic model of the human arm." *AMS Spring Central Section Meeting*, Lubbock, TX (April, 2005)
15. Invited Talk: "A Hybrid Parameter Approach to Modeling Human Movement Systems." *Computation and Control and Biological Systems VII*, Bozeman, MT (August, 2003)
16. Invited talk: Karacher Colloquium: "Control and Biomechanics of Human Movement Systems." Department of Mathematics, Oklahoma University, (September, 2003)
17. Invited session talk: "Dynamics of Avian Kinesis." *Mathematical Theory of Networks and Systems 2002*, University of Notre Dame (August 2002)
18. Invited session talk: "Effects of Control Strategies on stress development in skeletal structures." *2002 American Control Conference*, Anchorage, AL (May 2002)
19. Invited session talk: "Optimal Motor Control Strategies and a Hybrid Approach to Stress Analysis in Skeletal Systems." *First SIAM Conference on Life Sciences*, Boston, MA (March 2002)
20. Invited session talk: "Optimal Motor Control Strategies and a Hybrid Approach to Stress Analysis in Skeletal Systems." Special Session: "Neural and Biomechanical Modeling in the Life Sciences," *2001 American Control Conference*, Arlington, VA (June 2001)
21. Workshop presentation: "Muscle Dynamics and Control." Workshop: "Motor Control Problems in the Brain," *39th IEEE Conference on Decision and Control*, Sydney, Australia (December 2000)
22. Invited session talk: "A Hybrid Approach to Stress Analysis in Skeletal Systems." Session: "Control of Biological Systems," *39th IEEE Conference on Decision and Control*, Sydney, Australia (December 2000)
23. Poster presentation: "A Hybrid Approach to Stress Analysis in Musculoskeletal Systems." *DARPA Teaming Workshop: Exoskeletons for Human Performance Augmentation*, Herndon, VA (2000)
24. Colloquium: "Human Movement Systems and Optimal Control Strategies." Department of Neuroscience, Washington University, St. Louis (November 2000)
25. Invited talk: "Optimal Control of Human Movement Systems." *Computation and Control VII*, Bozeman, MT (August 2000)

26. Workshop presentation: "Control of Eye and Limb Movements." Workshop: "Biological approaches to control system problems," *2000 American Control Conference* Chicago, IL (July 2000)
27. Invited session "A Dynamic 3-d Model of Ocular Motion." Session: "Dynamic Problems in Vision and Motor Control," *38th IEEE Conference on Decision and Control*, Phoenix, AZ (December 1999)
28. Colloquium: "A Forward Dynamic Model of Gait with Application to Stress Development in Skeletal Members." Division of Biological Sciences, University of Chicago (May 1999)
29. Colloquium: "The Dynamics and Control of Human Movement Systems." Center for Biocybernetics and Intelligent Systems, Washington University, St. Louis (February 1999)
30. Contributed talk: "A Forward Dynamic Model of Gait with Application to Stress Analysis of Bone." *Texas System Days*, Lubbock, Texas (November 1998)
31. Contributed talk: "Musculature Effects on Stress Distribution in Bone." *1998 Symposium*, Center for Applied Human Biomechanics, Texas Tech University (November 1998)
32. Invited session talk: "A Direct Approach Utilizing Musculoskeletal Dynamics and Neuromuscular Control to Determine Stress Development in Bone." Session: "Biomechanics and Biomathematics," *35th Annual Technical Meeting of the Society of Engineering Science*, Pullman, WA (September 1998)
33. Invited session talk: "Some Modeling Issues in Hill Based Systems." Session: "Biomechanics and Biomathematics," *35th Annual Technical Meeting of the Society of Engineering Science*, Pullman, WA (September 1998)
34. Invited talk: "A Direct Dynamics Approach to Human Movement Systems." *Computation and Control VI*, Bozeman, MT (August 1998)
35. Invited session talk: "A Direct Dynamic Approach to Stress Development in Bone." Session: "Biomechanics," *Mathematical Theory of Network and Systems 1998*, Padova, Italy (July 1998)
36. Invited session talk: "Dynamics of Ocular Motion." Session: "Dynamic Vision and Control," *Mathematical Theory of Network and Systems 1998*, Padova, Italy (July 1998)
37. Colloquium: "Dynamics and Control." Department of Mathematics and System Science, Washington University, St Louis (March 1998)
38. Contributed talk: "Effects of Musculoskeletal Dynamics On Stress Development in Bone." *Southern Biomedical Conference on Bioengineering*, San Antonio, TX (January 1998)
39. Invited talk: "Ocular Dynamics and Control." *Conference on the Mathematics of Life Sciences*, Lubbock, TX (January 1998)

40. Invited session talk: "A Control Model of Eye Movement." Session: "Control, Identification, and Filtering Problems in Vision," *36th IEEE Conference on Decision and Control*, San Diego, CA (December 1997)
41. Invited session talk: "The Energy Release Rate for Antiplane Fracture for Nonlinear and Nonhomogeneous and Material." Session: "Fracture," *25th Midwestern Mechanics Conference*, Rapid City, SD (October 1997)
42. Poster presentation: "NSF Instrumentation and Laboratory Grant Projects." MAA special session, *Joint Mathematics Meeting of AMS-MAA*, San Diego, CA (January 1997)
43. Invited talk: "Muscle Mechanics in the Control of Eye Movement." *Computation and Control V*, Bozeman, MT (August 1996)
44. Contributed talk: "Energy Release Rate Calculations for Fracture in Nonhomogeneous and Nonlinear Material." *Third International Conference on Composites Engineering*, New Orleans, LA (July 1996)
45. Invited session talk: "A Control Theoretic Model of Musculoskeletal Injury." Session: "Mathematical Modeling of Physiological Systems," *Mathematical Theory of Networks and Systems 1996*, St. Louis, MO (June 1996)
46. Workshop presentation: "Muscle Models with Application to Physiological Systems." Workshop: "Control Problems in Vision," *Mathematical Theory of Networks and Systems 1996*, St. Louis, MO (June 1996)
47. Contributed talk: "A Numerical Method for Problems of Fracture in a Nonlinear Composite Material." *Second International Conference on Composites Engineering*, New Orleans, LA (August 1995)
48. Poster presentation: "Fatigue Effects in Muscular Control: The Monosynaptic Reflex." *Fourth Annual Computational Neuroscience Meeting*, Monterey, CA (July 1995)
49. Poster presentation: "Fatigue Effects in Muscular Control." *Eighth IEEE Symposium on Computer-Based Medical Systems*, Lubbock, TX (June, 1995)
50. Invited session talk: "Control of Muscular Contraction by the Stretch Reflex." Session: "Control Theory and Medicine," *Third SIAM Conference on Control and Its Applications*, St. Louis, MO (May 1995)
51. Invited talk: "Biomechanical Aspects of Stress Fractures." *Symposium on Mathematics and Medicine*, Texas Tech University Health Sciences Center, Lubbock, TX (April 1994)
52. Poster presentation: "Laboratory Approaches in Undergraduate Mathematics." MAA special session, *Joint Mathematics Meeting of AMS-MAA*, Cincinnati, OH (January 1994)
53. Colloquium: "Fracture in Viscoelastic Media." Department of Mathematics, University of Texas at Dallas (October 1993)
54. Contributed talk: "Dynamic Fracture in a Nonhomogeneous Viscoelastic Body." *Second International Conference on Industrial and Applied Mathematics*, Washington D.C. (July 1991)

55. Contributed talk: "Dynamic Fracture in a Nonhomogeneous Viscoelastic Body." *Sixty-Seventh Annual Meeting of Southwestern Rocky Mountain Division of the American Association for the Advancement of Science*, Lubbock, TX (May 1991)
56. Contributed talk: "Wave Propagation in a Nonhomogenous Rod." *Seventh Annual Conference on Applied Mathematics*, University of Central Oklahoma, Edmond, OK (April 1991)
57. Contributed talk: "Quasi-Static Mode III Fracture in a Nonhomogeneous Body." *11th U.S. National Congress of Applied Mechanics*, Tucson, AZ (May 1990)
58. Colloquium: "Damage Models and Damage Effects in Viscoelastic and Elastic Fracture." Department of Mechanical Engineering, Texas Tech University (April, 1990)
59. Contributed talk: "Riemann-Hilbert Boundary Value Problems in Fracture Mechanics." *Sixth Annual Conference on Applied Mathematics*, University of Central Oklahoma, Edmond, OK (April 1990)
60. Contributed talk: "The Dynamic Energy Release Rate for Crack Propagation in a Viscoelastic Media." *Pan American Congress of Applied Mechanics*, Rio de Janeiro, Brazil (January 1989)
61. Colloquium: "Fracture in Damaged Elastic and Viscoelastic Media." US Air Force Astronautics Laboratory, Edwards AFB, CA (August 1987).
62. Contributed talk: "Fracture in Viscoelastic Media." *SIAM Texas-Oklahoma Section Meeting*, Austin, TX (April 1987)
63. Colloquium: "The Energy Release Rate and Viscoelastic Fracture." Department of Mathematics, Naval Postgraduate School, Monterrey, CA (December 1986)

EDUCATIONAL ACTIVITIES

▪ Synergistic Activities

Senior personnel and faculty mentor for National Science Research Experience for Undergraduates Program (Summers 2007 and 2006)

Faculty mentor for TTU Summer Mathematics Academy (Summer 2006)

Invited presentation to the TTU Success Center "Last Lecture Series" (2001)

Faculty mentor, Clark Scholars Program (1999, 1995)

PI and Co-PI on two NSF Instrumentation and Laboratory Improvement Grants that provided for the establishment of classroom-computer laboratories for the Department of Mathematics and Statistics (1998, 1992)

Presentation, "Computer Algebra Systems and the Internet as Tools for Independent Mathematics Study and Development," to *Technology in Instruction Roundtable*, sponsored by the Texas Tech University Teaching, Learning, and Technology Center (1997)

Panel member, Department of Communication Studies, graduate student teaching seminar. Panel discussion on 'Teaching Effectiveness' (October 1996)

Co-organizer of a workshop in conjunction with the Teacher Outreach Program, a national leadership program for teachers in science and mathematics, sponsored by the Woodrow Wilson National Fellowship Program. The workshop introduced high school and college mathematics teachers to instructional methods that incorporate technology into the classroom experience (summer 1994)

▪ **Courses Taught**

Graduate: Principles of Classical Applied Analysis, Real Analysis, Intermediate Analysis Ordinary Differential Equations, Partial Differential Equations, Special topics in Biomechanics

Undergraduate: Calculus I, II, III; Linear Algebra, Advanced Calculus, Numerical Analysis, Statistics for Engineers & Scientists, Ordinary Differential Equations, Partial Differential Equations, Higher Mathematics for Engineers, Computational Techniques for Science and Mathematics, Basic Computer Literacy and Programming

GRADUATE STUDENT DIRECTION

▪ **Chair, Graduate Student Advisory Committee**

1. Tina Gaumont, Ph.D., December 2010. Dissertation: "Optimal Control Models in Ocular Dynamics."
2. Jeremy Hedges, M.S., August 2005. Thesis: "A perturbation analysis of nonlinear constrained vibrations."
3. Jacqueline Fowler, M.A., August 2005. Report: "Essential Resources and Cost Effectiveness of Online Mathematics Course."
4. Zachary Kemp, M.S., May 2004. Thesis: "The Stability and Control of Musculotendon Dynamics."
5. Samantha Bouquin, M.S., May 2004. Thesis: "The Dynamics of a Constrained, Nonlinear Oscillator."
6. Stephanie Miller, M.S., May 2002. Thesis: "Dynamical Models of Cranial Kinesis."
7. Doug Meador, M.S., August 2000. Thesis: "The Dynamics and Control of a Planar Articulating Segmental Model."
8. Allen Miller, M.S., August 2000. Thesis: "Vibrations of Nonhomogeneous media and the Prediction of Mechanical Resonance in Human Tibia."
9. Jaysyn Voshell, M.S., August 1999. Thesis: "Stress Analysis of the Femur."
10. Pamela Lockwood-Cooke Ph.D., December 1998 (co-directed with C. Martin). Dissertation: "A Dynamic 3D Model of Human Eye Movement."

11. Albert McSpadden, M.S., May 1998. Thesis: "A Mathematical Model of Human Saccadic Eye Movement."
12. Yssa DeWoody Ph.D., May 1998 (co-directed with C. Martin). Dissertation: "The Role of Musculoskeletal Dynamics and Neuromuscular Control in Stress Development and Remodeling in Bone."
13. Rob Robleto, M.S., August 1997. Thesis: "Analysis of Musculotendon Dynamics of Hill-Based Models."
14. Tamas Jakab, M.S., May 1997. Thesis: "A Mathematical Model of Muscular Control."
15. Rajan Alex Ph.D., May 1994. Thesis: "An Analytical and Finite Element Analysis of Fracture in Nonhomogeneous Viscoelastic Material."
16. Valissa Kay Smith M.A., May 1994. Thesis: "A Radial Bound for the Filled Julia Set."
17. Yancey Nunez, M.S., May 1993. Thesis: "Problems of Optimal Design in Solid Mechanics."
18. Kesheng Yu, M.S., May 1992. Thesis: "Analytic Representations of Biharmonic Functions with Applications to Mixed Boundary Value Problems."
19. Donald Ryan, M.S., May 1991. Thesis: "Integral Equations with Cauchy Type Kernels with Applications in Dislocation Theory."
20. Brian Christiansen, M.S., May 1991. Thesis: "The Numerical Solution of a Fredholm Integral Equation with a Weakly Singular Kernel."
21. Bijan Pashaie, M.S., May 1990. Thesis: "Wave Propagation in a Nonhomogeneous Elastic Rod."
22. Doug Kellam, M.A., August 1990. Thesis: "A Regular Perturbation Analysis of the Nonlinear Equation of Motion for a Vibrating Rod."
23. Scott Brisendine, M.S., May 1988. Thesis: "An Opening Mode Crack in a Nonhomogeneous Elastic Material."
24. William Todd Timmons, M.S., May 1988. Thesis: "An Analysis of an Antiplane Shear Crack in a Nonhomogeneous Elastic Medium."

▪ **Member, Graduate Advisory Committees (17 PhD, 29 Masters)**

Luke Mayer, PhD, Mechanical Engineering (2015)

Calandra Brazille, MS Mathematics (2007)

Menaka Navaratna, MS Mathematics (2006)

Kyle Kundomal, MS Mathematics (2006)

Tina Gaumond, MS Mathematics (2005)

Preeda Meekangvan, MS Mechanical Engineering (2004)

Cody Moody, MS Mechanical Engineering (2004)

Channa Navaratna, PhD Mathematics (2003)
Pantaleon Perera, PhD Mathematics (2003)
Duminda Randeniya, MS Mathematics (2003)
Menaka Navaratna, MS Mathematics (2003)
Nilmini Wijeratne, MS Mathematics (2003)
Kimberly Drews, PhD Mathematics (2002)
C. Navaratna, MS Mathematics (2001)
Nadarajah Kirupaharan, MS Mathematics (1999)
Sumanmalee Sugathadasa, MS Mathematics (1999)
N. Wang, MS Mathematics (1999)
Pantaleon Perera, MS Mathematics (2001)
Kathleen Gilliam, PhD Mathematics (1998)
James Conn, MS Mathematics (1998)
Karen Siekerd, MS, Royal Institute of Technology, Stockholm (1997)
Gabriella Pinter, PhD Mathematics (1997)
Jack Tomlinson, PhD Mathematics (1997)
Andres Balough, PhD Mathematics (1997)
Istvan Lauko, PhD Mathematics (1997)
David Thrasher, MS Mathematics (1997)
Heinrik Ergstadt, MS, Royal Institute of Technology (1996)
Nwojo Agwu, PhD Mathematics (1996)
Karl Havlak, PhD Mathematics (1996)
Ron Howard, MS Mathematics (1996)
Bian Ango, PhD Mathematics (1995)
Glenn Bear, MS Mathematics (1995)
Zaichao Xu, MS Mathematics (1994)
Kimberly McGowen, MS Mathematics (1994)
Jianqu He, PhD Mathematics (1993)
Russel Simmons, MA Mathematics (1993)
Qiu Shi Zheng, MS Mathematics (1992)
Xiaoning Li, MS Mathematics (1992)

Kendall Richards, PhD Mathematics (1991)
Carrie Chatfield, MA Mathematics (1991)
Lihua Xie, MS Mathematics (1991)
Tai-Lang Jong, PhD Electrical Engineering (1990)
Issam Ayoubi, PhD Mathematics (1989)
Allan Smith, MS Electrical Engineering (1989)
Kallappa Koti, PhD Mathematics (1988)
Jim Cox, MS Mathematics (1988)
George Pappus, MS Electrical Engineering (1987)